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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/767,522	01/23/2001	Lee M. Proctor	CE08569R	3399

22917 7590 03/15/2004

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EXAMINER	
BRANT, DMITRY	

ART UNIT	PAPER NUMBER
2655	8

DATE MAILED: 03/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/767,522	PROCTOR ET AL.	
	Examiner	Art Unit	
	Dmitry Brant	2655	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01/23/01*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 7.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 6 and 13 are objected to because of the following informalities:

Applicant needs to add the description/explanation of "zeroing out the state of the speech decoder filter" to the Specification. The examiner interpreted "zeroing out the state of the speech decoder filter" as "resetting the state of the speech decoder filter". Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen (5,751,725), in view of Jacobs et al. (5,414,796)

As per claims 1, 2, and 9, Chen discloses a method of:

- receiving a frame and determining the rate of a frame (Col. 6, lines 1-6)
- determining if first frame rate was in error to produce an error determination, by applying more stringent thresholds when an error is suspected in the frame (Col. 9, line 56-61). Specifically, this is done by comparing a rate of a current frame with a rate of a previous frame and adjusting the thresholds based on the results of comparison (Col. 11, lines

25-30). Because the difference between frame rates is probabilistically unlikely (~10 %) (Col. 6, lines 16-18), the tightening of thresholds will ensure that transitional frames encoded at ½ and ¼ rates will not be mistakenly erased.

Chen does not disclose updating the state of decoder filter based on the error determination.

Jacobs et al. teach making corrections to the characteristics of decoder's filters in order to reduce the noise introduced by defective, erased or blank frames. (Col. 41, lines 20-23, FIG. 21C)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Chen as taught by Jacobs in order to reduce the effects of the wrong filter characteristics on the output of the decoder. By using the techniques taught by Jacobs et al., the system would be able to detect incorrect rate decisions and quickly adjust filter parameters in order to correct for the mistakes, thus avoiding the amplified noises, clicks, etc. in the output of the phone speaker.

As per claims 3 and 10, Chen discloses determining if transition between frames is invalid by applying a tight maximum and minimum SER thresholds when rates differ between adjacent frames (Col. 11, line 27-30). Therefore, the transition will be declared invalid if it passed under the old thresholds, but failed to meet the updated thresholds.

As per claims 4 and 11, Chen discloses determining a full and eighths frame rates for the first and second compared frames, respectively. (Col. 11, lines 15-25)

As per claims 5 and 12, Chen discloses determining a rate from a group of full, half, quarter and eighth rates (Col. 6, lines 1-6)

As per claims 6 and 13, Chen does not disclose "zeroing out the state of the speech decoder filter."

Jacobs et al. teach making corrections to the characteristics of decoder's filters in order to reduce the noise introduced by defective, erased or blank frames. (Col. 41, lines 20-23, FIG. 21C)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Chen as taught by Jacobs et al. and change the characteristics of the filter in order to reduce the effects of the wrong filter characteristics on the output of the decoder. Furthermore, it would have been obvious to one of ordinary skill in the art that changing characteristics of a filter would involve first resetting the current state of the filter. If the state of the filter were not reset, there would be a high probability of incorrect filter behavior since the erroneous old filter settings could excessively interfere with the future settings.

As per claim 7 and 14, Chen does not disclose "updating the state of the speech decoder filter from a group consisting of a pitch filter, a vocal tract filter, and a post filter."

Jacobs et al. teach the use of pitch filter (elem. 156, FIG. 6), formant filter (vocal tract filter) (elem. 158, FIG. 6) and post filter (elem. 160, FIG. 6) in the design of variable rate vocoder.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Chen as taught by Jacobs to reduce the effects of the wrong filter characteristics on the output of the vocoder. Because the vocoder taught by Jacobs et al. comprises a pitch filter, a formant filter and a post filter, the steps of updating these filters' coefficients would reduce the undesirable noise produced by the phone when the decoder incorrectly identifies the frame rate.

As per claim 8, Chen does not disclose determining if the first frame was a signaling frame.

Jacobs et al. teach the use of blank frames in order to transmit signaling information, in which case the decoder filter coefficients are updated in order to mask the detected signaling frame (Col. 40, lines 39-47)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Chen as taught by Jacobs in order to reduce the effects of the wrong filter characteristics on the output of the decoder, when the frame contains no speech information. Therefore, the system would quickly adjust filter parameters in

order to correct for the mistakes, thus avoiding the amplified noises, clicks, etc. in the output of the phone speaker.

As per claim 15, Chen discloses a decoder (elem. 30, FIG. 1) that determines the rate of the incoming frame (Col. 6, lines 2-7).

Chen does not disclose modifying the state of the filter based on the validity of frame rate.

Jacobs et al. teach making corrections to the characteristics of decoder's filters in order to reduce the noise introduced by defective, erased or blank frames. (Col. 41, lines 20-23, FIG. 21C)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Chen as taught by Jacobs in order to reduce the effects of the wrong filter characteristics on the output of the decoder. By using the techniques taught by Jacobs et al., the system would be able to detect incorrect rate decisions and quickly adjust filter parameters in order to correct for the mistakes, thus avoiding the amplified noises, clicks, etc. in the output of the phone speaker.

As per claim 16, Chen discloses determining if first frame rate was in error to produce an error determination, by applying more stringent thresholds when an error is suspected in the frame. (Col. 9, line 56-61). This is done by comparing a rate of a current frame with a rate of a previous frame and adjusting the thresholds based on the results of comparison (Col. 11, lines 25-30). Because the difference between frame

rates is probabilistically unlikely (~10 %) (Col. 6, lines 16-18), the tightening of thresholds will ensure that transitional frames encoded at ½ and ¼ rates will not be mistakenly erased.

As per claim 17, Chen does not disclose "updating the state of the speech decoder filter from a group consisting of a pitch filter, a vocal tract filter, and a post filter."

Jacobs et al. teach the use of pitch filter (elem. 156, FIG. 6), formant filter (elem. 158, FIG. 6) and post filter (elem. 160, FIG. 6) in the design of variable rate vocoder.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Chen as taught by Jacobs to reduce the effects of the wrong filter characteristics on the output of the vocoder. Because the vocoder taught by Jacobs et al. comprises a pitch filter, a formant filter and a post filter, the steps of updating these filters' coefficients would reduce the undesirable noise produced by the phone when the decoder incorrectly identifies the frame rate.

3. Claims 18-20 are rejected under 35 U.S.C. 103(a) as being obvious over Chen. Chen discloses:

- receiving a frame and determining the rate of a frame (Col. 6, lines 1-6)
- 90% of the frames are either at full or eights frame rates (Col. 11, lines 15-25). In addition, Chen discloses a principle speech/silence continuity that states that if a person is talking, he is likely to continue talking at the same

rate. Likewise, if a person is silent, the person is likely to remain silent. (Col. 11, lines 21-24).

- discloses adjusting SER thresholds based on the determination of probability of the current frame rate (Col. 11, lines 25-30).

Chen does not disclose specifically determining the number of eights frame rates.

It would have been obvious to one of ordinary skill in the art at the time the invention was made that based on Chen's principle, one can probabilistically determine if the current frame rate, based on the measurements of the previous rates, because a large number of sequential frames encoded at the same rate indicates that the next frame is likely to be at the same rate. Therefore, if one wanted to predict if the current frame would be silent, he/she could look at the number of previous sequential eights rate frames and if the number was high, predict with a high probability that the silence period will continue into the next frame.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

DeJaco (6,205,130) teaches a method for detecting errors in packets.

Manjunath et al. (6,584,438) teach a frame erasure compensation method.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dmitry Brant whose telephone number is (703) 305-8954. The examiner can normally be reached on Mon. - Fri. (8:30am - 5pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Talivaldis Ivars Smits can be reached on (703) 306-3011. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to Tech Center 2600 receptionist whose telephone number is (703) 305- 4700.

DB
2/27/04

TĀLIVALDIS IVARS ŠMITS
PRIMARY EXAMINER